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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,058	10/29/2003	Klaus Mullen	UC0349 US NA	5873

23906 7590 12/13/2005

E I DU PONT DE NEMOURS AND COMPANY
LEGAL PATENT RECORDS CENTER
BARLEY MILL PLAZA 25/1128
4417 LANCASTER PIKE
WILMINGTON, DE 19805

EXAMINER

YAMNITZKY, MARIE ROSE

ART UNIT	PAPER NUMBER
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1774

DATE MAILED: 12/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/696,058

Applicant(s)

MULLEN ET AL.

Examiner

Marie R. Yamnitzky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 Oct 2003, 07 May 2004 and 16 Mar 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date rec'd 07 May 2004 and 16 Mar 2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because the filing date for the application as identified in the oath or declaration is incorrect.

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The abstract of the disclosure is objected to because it does not describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details. Correction is required. See MPEP § 608.01(b).

The examiner suggests that at least the chemical formula shown in present claim 1 be included in the abstract.

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4. The disclosure is objected to because of the following informalities:

Page 3, line 18 refers to an “alkenyl” moiety in reference to an oxyalkynyl (emphasis added).

The last full paragraph on page 7 describes Alq₃ as an example of a light-emitting material with good hole-transport properties. In the examiner’s experience, Alq₃ is generally recognized as a light-emitting material with good electron-transport properties rather than good hole-transport properties.

Page 8, lines 19-24 describe optional layer 140 as a layer for facilitating electron-injection/transport, and the organic materials named in the penultimate paragraph on page 8 are conventionally known as materials capable of injecting and/or transporting electrons. However, page 8, line 25 indicates that the named materials are examples of materials which may facilitate hole-injection/transport.

Lines 9-10 on page 10 are confusing in first teaching that the cathode layer is usually no thicker than about 100 nm, and then disclosing 30-500 nm as an exemplary thickness range for the cathode layer.

Page 10, line 38 and page 13, line 6, include a superscript “23”, as if referring to a footnote or endnote.

Lines 8-10 on page 12 refer to adding a solution of diester “5” in the manufacture of pentaphenylene “4”. Compound “5” as shown in the scheme on page 11 is not a diester. Should “5” read --3-- at the end of line 8?

Page 16, line 10 refers to diester "9" and page 16, line 19 refers to diester "2". Since this portion of the specification deals with the manufacture of dibromopentaphenylene "9", and based on the scheme on page 15, reference to diester "9" in line 10 appears to be incorrect and it is not clear to the examiner if the reference to diester "2" in line 19 is correct.

Appropriate correction/clarification is required.

5. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In the definition of R^1 , independent claims 1, 6 and 8 recite "or adjacent R groups together can form a 5- or 6- membered cycloalkyl, aryl or heteroaryl ring". In this phrase, it is not clear if "adjacent R groups" refers to R^1 groups, or to R^3 groups (which are present in some of the possibilities for R^1).

In the definition of R^2 , independent claims 1, 6 and 8 recite "or adjacent R groups together can form a 5- or 6- membered cycloalkyl or heterocycloalkyl ring". In this phrase, it is not clear if "adjacent R groups" refers to R^2 groups, or to R^3 groups (which are present in some of the possibilities for R^2).

The examiner notes that based on the positions of the R^1 groups relative to each other, and the positions of the R^2 groups relative to each other in the formulae shown in claims 1, 6 and 8, it is impossible for any two R^1 groups to form rings as small as 5- or 6-membered rings, although it would be possible for some pairs of R^2 groups to form 5- or 6-membered rings. The

examiner notes that it would be possible for some pairs of R^3 groups to form 5- or 6-membered rings, but only hetero rings since each R^3 is attached to a heteroatom.

The same definitions for R^1 and R^2 as set forth in the present claims are set forth in the specification. The specification provides no specific examples of monomers or polymers in which adjacent R^1 , R^2 or R^3 groups form a 5- or 6-membered ring, so the specification does not clarify the questioned claim limitations regarding adjacent R groups.

Claim 5 limits the emission maximum for the polymer, but does not specify the conditions for measurement of the emission maximum. The emission maximum of a material may differ depending upon conditions (e.g. film form vs. solution form).

Claim 7 is drawn to an electronic device, but depends from claim 5, which is drawn to a polymer. Claim 7 should apparently depend from claim 6 instead of from claim 5.

Claim 7 requires the device to emit light at a wavelength less than 500 nm. It is not clear if it is sufficient for the emission spectrum of the device to have at least one emission wavelength less than 500 nm, or if the emission maximum of the emission spectrum must be at a wavelength less than 500 nm.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Stern et al. (US 5,856,434) disclose copolymers for use in electroluminescent devices. The copolymer segment represented by formula (Ia) as shown in columns 3-4 of the patent is similar to, but outside the scope of, the structure defined in present independent claims 1 and 6.

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7. The examiner acknowledges applicant's disclosure of pending U.S. application No. 10/696,057 (cited in IDS received May 07, 2004). For reasons unknown to the examiner, the '057 application has not been pre-grant published, though it appears to be eligible for publication. If/when the '057 application is published, the examiner will list the publication number on a PTO-892.

The present application is also disclosed via IDS in the '057 application, so each applicant is apparently aware of the other's application. The correspondence address and power of attorney is the same for both applications. The two applications were filed on the same date.

The two applications claim overlapping subject matter. However, there is no inventor in common between the two applications, assignment information available to the examiner indicates that the two applications are not commonly owned, and there is no indication on the record that the claims of the applications are directed to an invention made as a result of activities undertaken within the scope of a joint research agreement.

Since the two applications were filed on the same date, neither disclosure represents prior art with respect to the other.

Since there is no inventor in common between the two applications, no apparent common ownership, and no indication of a joint research agreement, the examiner has not made an obviousness-type double patenting rejection. If the current information available to the examiner regarding inventorship, ownership and/or joint research agreements is incorrect/incomplete, clarification is required and the examiner will reconsider the applicability of an obviousness-type double patenting rejection.

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Presuming no common ownership and no joint research agreement, further proceedings may be necessary upon resolution of all other issues set forth in this action if overlapping subject matter continues to be claimed.

8. Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (571) 272-1531. The examiner works a flexible schedule but can generally be reached at this number from 6:30 a.m. to 4:00 p.m. Monday, Tuesday, Thursday and Friday, and every other Wednesday from 6:30 a.m. to 3:00 p.m.

The current fax number for all official faxes is (571) 273-8300. (Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (571) 273-1531.)

MRY
December 08, 2005



**MARIE YAMNITZKY
PRIMARY EXAMINER**

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